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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/781,460

02/17/2004

Richard W. Siegel

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03/25/2008

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EXAMINER

LE, HOA T

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

03/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/781,460	Applicant(s) SIEGEL ET AL.	
	Examiner H. T. Le	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-34 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-34 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. Claims 33, 34 and 42 are rejected under 35 U.S.C. 112, first paragraph, because the specification, as lack of enablement as set forth in the last office action and further discussed below.

Applicant argued that at page 22 of the present specification, the flash CVD can be also used to fabricate other non-carbon based particles. The actual statement is: "In addition to carbon structures, microtrees and nanotrees having other compositions may be fabricated by the processes of the present invention." (emphasis added). The term "may" indicates that it is just a theory not actual reduction to practice. Just because these materials are known to form layered structures under conventional CVD conditions, they cannot just simply grow into the specific structures as claimed under flash CVD conditions. Several factors may affect particle growth such as the nature of the substrate, the operating conditions on the substrate, the reactivity of the precursors and the materials involved in the process. There is no guarantee that the same structures as claimed can be grown on a material other than graphite, especially with metallic materials where their reactive and chemical properties are substantially different from those of graphite or carbon. More importantly, it cannot be seen how flash CVD can produce microtrees or nanotrees of composites ("combination thereof")

as recited in these claims. Therefore, the specification as originally claimed does not enable products as recited in claims 33, 34 and 42.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 24-34 and 42 are rejected under 35 U.S.C. 102(a) as being anticipated by the Ajayan article ("Growth of Carbon Micro-trees).

The Ajayan article disclosed carbon microtrees that have the exact same structure as claimed. See figures 1 and 2. In addition, the particles (microtrees) are made by a process exactly identical to the process disclosed in the instant specification; therefore, the particles reported in the Ajayan article necessarily possess the same shape and dimensions as claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 33, 34 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Ajayan article as applied to claims 24-34 and 42 above, and further in view of

the Gleizes article ("MOCVD of Chalcogenides, Pnictides, and heterometallics Compounds from Single-Source Molecule Precursors").

Gleizes teaches materials that are able to be grown on a substrate via CVD process.

Such materials include chalcogenides in particular Molybdenum chalcogenides, pnictides in particular transition metal silicides and heterometallic compounds

Therefore, one having ordinary in the art would have found it obvious to apply the CVD method on substrate that produces these materials.

DUTY OF DISCLOSURE

7. Applicants and their Representative are reminded of the Duty to disclose information material to patentability as required under 37 CFR 1.56 which states: (1) "Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability..." and (2) "[N]o patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct". See 37 CFR 1.56 (a)). The following facts have been observed by the Examiner. The Ajayan article, which is being applied as an anticipatory reference in this office action, was published in March 2000. Applicants own the Ajayan article because the three co-authors of the Ajayan article are also the inventive entity of the present application. However, the Ajayan article has never been disclosed to the Office. The CW article, which was applied as an anticipatory reference in the previous office action, describes the product of the claimed

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invention and reports Applicants as the researchers who produce such product. The CW article also reports that Applicants (namely "Ajayan and his coworkers") have reported their findings in "the March 16 Nature", which report is in fact the Ajayan article. In the response, while rejected the CW article as being "not available as a 35 USC 102(b) anticipating reference", Applicants did not disclose to the Office that Applicants own the article mentioned in the CW article. The Ajayan article was finally uncovered by the Examiner after a series of convoluted searches because journals are not in the Office database, while it could have been easily provided by Applicants.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. Thi Le/

H. (Holly) T. Le
Primary Examiner
Art Unit 1794

March 9, 2008